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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FRANCO LEONARDI et al.

Group Art Unit: 1762

Serial No.: 10/064,583

Examiner: B. Pianalto

Filed: July 29, 2002

For: METHOD OF MANUFACTURING ELECTROMAGNETIC
DEVICES USING KINETIC SPRAY

Attorney Docket No.: FMC 1539 PUS2

APPEAL BRIEF

Mail Stop AF
Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

This is an Appeal Brief from the final rejection of claims 1-10 of the Office
Action dated July 28, 2003. This application was filed on July 29, 2002.

01/28/2004 YPOLITE1 00000106 061510 10064583

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I. REAL PARTY IN INTEREST

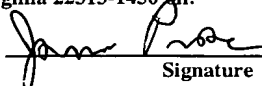
The real party in interest is Ford Motor Company, a corporation organized and
existing under the laws of the state of Delaware, and having a place of business at Dearborn,
Michigan as set forth in the assignment recorded in the U.S. Patent and Trademark Office on
July 29, 2002 at Reel 012929/Frame 0746.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal
Service as first-class mail, postage pre-paid, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, United
States Patent and Trademark Office, P.O. Box 1450, Alexandria, Virginia 22313-1450 on:

January 20, 2004
Date of Deposit

JAMES PROSCIA
Name of Person Signing


Signature

II. RELATED APPEALS AND INTERFERENCES

There are no current appeals or interferences related to the present appeal.

III. STATUS OF CLAIMS

Claims 1-10 are pending in this application. Claims 1-10 have been rejected and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

An Amendment After Final Rejection has been filed but the claims were not amended.

V. SUMMARY OF THE INVENTION

Applicant's claimed invention is directed to electric machines which includes a first machine component having a carrier and a kinetically sprayed permanent magnet material and a binder material forming a composite admixture having microstructures of permanent magnet material embedded in the binder material. The admixture advantageously has a permanent magnetic moment and is positioned atop of the carrier to form a first component of the electric machine. The preferred magnetic material is selected from the group consisting of iron, nickel, samarium-cobalt, aluminum-nickel-cobalt, neodymium-iron-boron, samarium-iron-nickel, and mixtures thereof, and a binder atop a carrier. The term kinetic spraying is a term of art which describes a method for applying a coating to a substrate. As used in the present invention, kinetic spraying comprises introducing said admixture of magnetic material and binder under pressure into a supersonic gas stream, and subsequently impacting said carrier with said admixture being maintained at a temperature substantially below the melting temperature of the magnetic material, said kinetically sprayed admixture adhering to said carrier and forming a solid permanent magnet. The present invention allows the fabrication of electric machine components that have both permanent (hard) and soft magnets by a single coating technology. This is particularly useful because coatings of some

hard magnets cannot be made by kinetic spraying without a binder. Moreover, entire "electric machines" can be made by the method of the present invention. Such machines are made using appropriately placed patterns of conductors and permanent and soft magnets on carriers or substrates. Finally, both magnetically conducting or isolating "binders" may be used in the admixture to produce permanent magnets.

VI. ISSUES

1. Whether claim 1 of the present application is anticipated under 35 U.S.C.102(b) by, or in the alternative, under 35 U.S.C. § 103(a) is obvious over GB 1,444,858 (the '858 patent) when the '858 patent reference fails to disclose any limitations of a kinetic spray process.

2. Whether claims 2-10 of the present application are obvious over GB 1,444,858 (the '858 patent) when the '858 patent reference fails to disclose any limitations of a kinetically spray process.

VII. GROUPING OF CLAIMS

Claims 1-10 stand together.

VIII. ARGUMENT

Appellants respectfully contend that the rejections of claim 1 under 35 U.S.C. 102(a), or in the alternative under 35 U.S.C. § 103(a), and the rejection of claim 2-10 under 35 U.S.C. § 103(a) is improper and should be withdrawn. As discussed herein, GB 1,444,858 (the '858 patent) is not directed to a kinetic spray process as required by the present invention.

ISSUE 1

Claim 1 is rejected under 35 U.S.C. § 102(a) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over GB 1,444,858 (the '858 patent")

For a claim to be anticipated under § 102, "each and every element of the claimed invention [must] be disclosed in the prior art. . . . In addition, the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public." *Akzo N.V. v. United States Int'l Trade Comm'n*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). The '858 patent cited by the Examiner does not disclose every element of the claimed invention for the reasons set forth below.

The '858 patent discloses a method of making permanent magnets on a surface of paper, cloth, plastics material film or other flexible base material." (the '858 patent, ll. 10-14.) The '858 patent describes the method as:

Accordingly, in one aspect, the present invention provides a method of manufacturing a film-formed permanent magnet, which method includes; **providing a paste** containing a solvent and a mixture of a magnetizable material and a bonding agent, the said mixture containing from 80 to 98% by weight of a finely powdered hard magnetic substance as the magnetizable material; **depositing a thin film-like coating of the paste** on the surface of a thin sheet-like base material; sequentially passing the coating under a plurality of leveling knives arranged in series to level the coating to a uniform thickness and to provide the coating with a smooth surface; magnetizing the finely powdered hard magnetic substance in the leveled coating perpendicular to the surface of the base material; drying the magnetized coating; and roll pressing the dried coating on the base material.
(the '858 patent, ll. 60-80, emphasis added)

The method disclosed in the '858 patent utilizes a paste of material which is deposited on a thin sheet-like substrate. This is not a kinetic spray process. Claim 1 clearly and unambiguously states that the electric machine of the present invention comprises "a kinetically sprayed permanent magnet material and a binder material forming a composite admixture having

microstructures of permanent magnet material embedded in the binder material.” Nowhere in the ‘858 patent is a kinetic spray process mentioned. Accordingly, claim 1 cannot be rejected under § 102 since not every limitation of this claim is disclosed in the ‘858 patent.

Similarly, the ‘858 patent standing alone can not be used to support an obviousness rejection under 35 U.S.C. § 103(a). As set forth above, the ‘858 patent does not disclose a “a kinetically sprayed permanent magnet material and a binder material forming a composite admixture having microstructures of permanent magnet material embedded in the binder material.” The Examiner has not offered a reference in this current rejection which discloses such a kinetic spray process. Moreover, the ‘858 is directed to a method of making permanent magnets on a “surface of paper, cloth, plastics material film or other flexible base material.” (The ‘858 patent, ll. 10-14.) The present invention is directed to electric machines. Again, the ‘858 patent is void of any mention of electric machine applications. Accordingly, claim 1 is patentable over the ‘858 patent.

ISSUE 2

Claims 2-10 are rejected under § 103(a) as being unpatentable over the ‘858 patent.

As set forth above for claim 1, the ‘858 patent standing alone can not be used to support an obviousness rejection under 35 U.S.C. § 103(a). Claims 2-10 each depend from claim 1 which has as an element “a kinetically sprayed permanent magnet material and a binder material forming a composite admixture having microstructures of permanent magnet material embedded in the binder material.” The ‘858 patent does not disclose such an element. Instead, the ‘858 patent discloses a method and apparatus for making a magnetic film by a process which uses a “paste containing a solvent and a mixture of a magnetizable material and a bonding agent, the said mixture containing from 80 to 98% by weight of a finely powdered hard magnetic substance as the magnetizable material” which is deposited on a substrate and then smeared out by a “plurality of leveling knives.” (The ‘858 patent, ll. 60-80,

emphasis added.) Clearly, a process which smears out a paste with leveling knives is in no way similar to a kinetic spray process.

Claims 2-10 are allowable since they are dependent from claim 1 which has now been shown allowable. Moreover, the Examiner states that the '858 patent renders claim 2-10 obvious because in his opinion "the limitations of these dependent claims are conventional and do not render these claims unobvious." (Office Action dated 7/28/03.) However, the Examiner offers no analysis or explanation for this proposition. Again, such a rejection cannot stand because the '858 patent does not disclose a kinetic spray process. Accordingly, the Applicant respectfully requests that claims 2-10 be allowed because the Examiner has failed to set forth a prima facie case of unobviousness.

The Commissioner is hereby authorized to charge the \$320.00 fee under 37 C.F.R. § 1.17(c) and any additional fees as a result of the filing of this paper to Ford Global Technologies LLC's Deposit Account No. 06-1510. A duplicate of this notice is enclosed for this purpose.

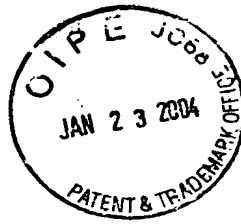
Respectfully submitted,

FRANCO LEONARDI et al.

By: James Proscia
James W. Proscia
Registration No. 47,010
Attorney/Agent for Applicant

Date: January 20, 2004

BROOKS & KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075
Phone: 248-358-4400
Fax: 248-358-3351
Enclosure - Appendix

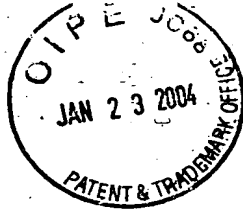


IX. APPENDIX - CLAIMS ON APPEAL

1. An electric machine comprising:
a carrier; and
a kinetically sprayed permanent magnet material and a binder material forming a composite admixture having microstructures of permanent magnet material embedded in the binder material, said admixture having a permanent magnetic moment and positioned atop of the carrier to form a first component of the electric machine.
2. The electric machine of claim 1, wherein said admixture of magnetic material and binder material has a particle size less than 325 mesh.
3. The electric machine of claim 1, wherein said magnetic material is selected from the group consisting of iron, nickel, cobalt, samarium-cobalt, aluminum-nickel-cobalt, neodymium-iron-boron and samarium-iron-nickel or mixtures thereof.
4. The electric machine of claim 1, wherein said binder material is selected from the group consisting of iron, nickel or cobalt or mixtures thereof.
5. The electric machine of claim 2, wherein said carrier is aluminum.
6. The electric machine of claim 1, wherein said carrier is iron.
7. The electric machine of claim 1, wherein said electric machine is a motor.
8. The electric machine of claim 1, wherein said electric machine is a generator.

9. The electric machine of claim 1, further comprising a kinetically sprayed conductor coil attached to a second component.

10. The electric machine of claim 9, wherein said second component is aligned with said first component whereby a magnetic moment penetrates the coil.



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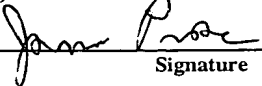
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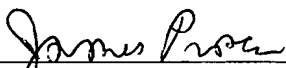
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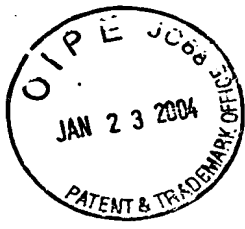
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BROOKS & KUSHMAN P.C.
1000 Town Center, 22nd Floor
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Phone: 248-358-4400
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Enclosure - Appendix



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